

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1602

Roll No.

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B. Tech.**(Semester II) Even Semester Theory Examination, 2012-13****COMPUTER CONCEPTS & PROGRAMMING IN C****Time : 3 Hours]****[Total Marks : 100****Note :** Attempt questions from each Section as per instructions.**Section-A**Attempt *all* parts of this question. Each part carries 2 marks.

2×10=20

1. (a) What is the role of SWITCH statement in C programming language?
- (b) List the characteristics of an Algorithm.
- (c) What are the differences in Array and Structures?
- (d) Compare Stack and List.
- (e) What is the difference between pass by value and pass by reference?
- (f) Differentiate the following :
 - (i) Unary Operator and Binary Operator.
 - (ii) Local variables and Global variables.
- (g) Is there any operator in 'C' that allows a three-way transfer of control? Give example.
- (h) What are the advantages of using pointers?
- (i) What is the need of dynamic memory allocation?
- (j) Differentiate between structure and union.

Section-BAttempt any *three* parts of this question. Each part carries 10 marks.

10×3=30

2. (a) (i) Give the architectural diagram of a computer. Explain the role of a control unit.
- (ii) What do you understand by loading and linking of a program?
- (b) Develop a flowchart and then write a 'C' program to sort strings passed to the program through the command line arguments. Also display the sorted strings.
- (c) While purchasing certain items a discount of 10% is offered if the quantity purchased is more than 2000. Write a program to calculate the total expenses, if quantity and price per item are entered through keyboard.
- (d) Define a structure for a student having name, roll number and marks obtained in six subjects. Write a program to input the details for 20 students and print the details of the students who have scored more than 70% marks overall.

- (e) The n th Fibonacci number is defined by

1 if n is 1

1 if n is 2

The sum of the previous two Fibonacci numbers otherwise. Write a recursive function in C to compute the n th Fibonacci number.

Section-C

Attempt *all* questions of this Section. Each question carries 10 marks. $5 \times 2 \times 5 = 50$

3. Attempt any *two* parts :

- (a) Explain the difference between a compiler and an interpreter.
- (b) Differentiate between a zero argument function and a parameterized function.
- (c) Differentiate between a subroutine and a function with examples.

4. Attempt any *two* parts

- (a) Discuss how following functions are used in files :
 `fopen()`, `getc()`, `putc()`, `fclose()`.
- (b) How many types of logical operators are there in 'C' programming language? Write about these giving suitable examples.
- (c) How is a string stored in memory? Is there any difference between string and character array?

5. Attempt any *two* parts

- (a) Write a program to add two matrices of dimension 3×4 and store the result in another matrix.
- (b) Write a C program fragment using "for loop" construct to print even numbers between 10 and 100 making sure that two numbers are written per line.
- (c) Give the output of the following program :

```
main ( )
{
    int y=0;
    unsigned int x=0;
    while (x != 0)
    {x<<1;y++}
    printf ("the value of y is \"%d\", y);
}
```

6. Attempt any *two* parts

- (a) Write a C function using pointers to exchange the values stored in two memory locations in the memory.
- (b) What is the purpose of the break statement? Within which control statements can the break statement be included?
- (c) Given are two one-dimensional arrays A and B which are stored in ascending order. Write a program to merge them into a single sorted array C that contains every element of A and B in ascending order.

7. Attempt any *two* parts

- (a) Write a program that accesses the array element using pointer variable.
- (b) Write a C program to find if a number is present in a list of N numbers or not.
- (c) Differentiate between run-time errors and logical errors.